

REMARKS

Claims 6-13 are pending. Claims 14 and 15 are newly added herein.

I. The drawings have been corrected to overcome the objections to the drawings.

Corrected drawings are enclosed under separate cover with the changes shown in red ink.

The German words have been deleted.

The various references “PCI” etc. have been incorporated into the amended specification for agreement. No new matter has been added at least because these references were shown in the figures.

II. The specification has been amended

The specification has been amended to include the disclosure from claim 7, claim 9, claim 10 and claim 11 for agreement with the claims. Therefore, no new matter has been added.

“UP” refers to “coupling unit” UP and has been changed at page 2, line 10 to agree with line 13.

III. The anticipation rejections of independent claims 6 and 13 and dependent claim 8 in view of Kudakov (abstract).

The Kudakov reference does not anticipate claim 6 at least because it does not teach inspection with pulsed lasers in the UV range as claimed in claims 6 and 13.

For example, the spindle oil mentioned on page 969 of the full Kudakov article is not suitable for UV illumination according to its refraction index and the related absorption value. Additionally, the wavelength disclosed by Kudakov, 630 nm, corresponds to continuous non-pumped HeNe Laser. Lastly, the matt glass is wetted with the oil, which is also very different disclosure from the present claims. Applicant can provide an English translation of the relevant

sections if the USPTO can not obtain the document. At least the difference of wetting with the oil is readily disclosed by the Abstract.

Therefore, claims 6 and 13 are respectfully asserted to be allowable. Claim 8 depends from claim 6, therefore it is also respectfully asserted to be allowable.

IV. The anticipation rejections of claims rejections of independent claims 6 and 13 and dependent claim 8 in view of Oohashi, U.S. 6,078,393.

Oohashi does not teach diffusing means which are rotating, i.e., turning continuously.

This feature is claimed at least inherently by claims 6 and 13 wherein it is claimed that:

"at least one rotating diffusion disk [is] arranged behind the laser for the homogenization of the illumination."

This is because in Oohashi instead teaches a "stepwise" (see column 6, line 38) phase shift procedure wherein the device uses an illumination phase when the disk is not rotating. After the exposure, the disk "stepwise" rotates and then stands still, and does not move, then the next light exposure occurs. This is used to randomize the phase disorder of the interference light (see Col. 7, lines 14-15, and Col. 8. lines 46-48, i.e., "The section 42 repeats the sequence M times, each time changing the position of the filter 21, thereby obtaining the sum..." in a periodically stopped stepwise fashion, and not by truly rotating, i.e., continuously turning, spinning or revolving.

Therefore, it is respectfully asserted that Oohashi does not teach claims 6 or 13. Claim 8 depends from claim 6 and is therefore also believed to be allowable.

V. The obviousness rejections of independent claim 12

Claim 12 has been cancelled.

VI. New claims 14 and 15 have been added.

Two new independent claims have been added herein. Independent claim 12 is cancelled herein. Therefore, a fee for one additional independent claim is enclosed.

No new matter has been added because claim 14 is a combination of claims 6+7 and claim 15 is a combination of claims 6+8+9. The language: "at least one continuously rotating diffusion disk" is not believed to be new matter but is merely a clarification of the inherent definition of the word "rotating" which is defined as "spinning or revolving." Therefore, it is respectfully requested that these claims be considered.

VII. Conclusion

In light of the *FESTO* case, no claim amendment made herein was related to the statutory requirements of patentability unless expressly stated herein. No claim argument, or amendment, made was for the purpose of narrowing the scope of any claim unless Applicant has explicitly stated that the argument is "narrowing."

Respectfully submitted,

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May 28, 2002
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MARKED UP SPECIFICATION

At page 2, lines 9-19, of the substitute specification, please delete the three paragraphs therein and substitute in their place the following three amended paragraphs:

-- Figure 1 shows an overall diagrammatic view of an inspection device consisting of a laser module LM with a pulsed UV laser, a [transmitter port] coupling unit UP, a microscope MI with an objective O and a scanning table ST, a CCD camera KA, a screen BS and a microscope controller MC with scanning tables controls for driving X, Y, and Z directions and an MSM 193 control. A MCU 27 Control Panel 27 is connected to Microscope Controller MC. Also shown is the System Control PC computer with communication ports COM1, COM2, COM3, COM4 shown as well as LPT port. Also shown is a PCI bus from the camera controller. A VIS lamp is also shown.

Figure 2a and 2b show a coupling unit UP for coupling the laser beam into the microscope MI.

The laser light reaches a first rotating diffusion disk S1 via reflecting mirrors U1, U2 and then a second rotating diffusion disk S2 preferably rotating in the opposite direction as well as the microscope ray path (not shown) via a lens L for beam expansion and an aperture B and the input E in Figure 1 and illuminates the object to be examined.—

At page 3, lines 5-6 of the substitute specification please replace the paragraph found therein with the amended paragraph below:

-- The homogenizing effect is reinforced by a second diffusion disk rotating in the opposite direction. The microscope may include two diffusion disks rotating in opposite directions arranged directly or indirectly behind each other in the illumination ray path. The microscope may include the structure that the diffusion disk is either of a granulated or of a holographically produced design. The microscope may use a rotation speed of at least such a magnitude that a rotation by at least one grain size and/or the resolution limit of a holographically generated structure or by the length of a structure takes place between two laser pulses. The microscope may use an illumination laser wavelength which essentially corresponds to the illumination

wavelength during the manufacture of semiconductors. The microscope may use an illumination wavelength is in the range of 193nm or 248nm or 266nm or 366nm, all with a tolerance of +/- 2nm. --

MARKED-UP CLAIMS

6. (Once amended) A microscope system [, especially] for inspection during semiconductor manufacture comprising:

a laser module;

a microscope;

a coupling connecting the laser module to the microscope;

a pulsed laser for illumination, said laser being in the UV range; and

at least one rotating diffusion disk [is] arranged behind the laser for the homogenization of the illumination.

7. (Once amended) The microscope system according to claim 6, including two diffusion disks rotating in opposite directions arranged directly or indirectly behind each other in [the] an illumination ray path.

8. (Once amended) The microscope system according to claim 6, wherein the diffusion disk is either of a granulated or of a holographically produced design.

9. (Once amended) The microscope system according to claim 6, with a rotation speed of the diffuser disk of at least [such] a magnitude that a rotation by at least one grain size [and/or] or the resolution limit of a holographically generated structure or by the length of a structure takes place between two laser pulses.

10. (Once amended) The microscope system according to claim 6, with an illumination laser wavelength which essentially corresponds to [the] an illumination wavelength during the manufacture of semiconductors.

11. (Once amended) The microscope system according to claim 10, wherein the illumination wavelength is in the range of 193nm or 248nm or 266nm or 366nm, all with a

tolerance of
+/-2nm.

12. Please cancel claim 12.

13. (Once Amended) In an inspection device for use in semiconductor manufacture, having a laser microscope, an improvement comprising: [that said laser is]

a pulsed laser in the UV range;
and at least one rotating diffusion disk [is] arranged behind the laser for the homogenization of the illumination.

PLEASE ADD THE FOLLOWING NEW CLAIMS:

14. (New) A microscope system for inspection during semiconductor manufacture comprising:

a laser module;

a microscope;

a coupling connecting the laser module to the microscope;

a pulsed laser for illumination, said laser being in the UV range;

at least one continuously rotating diffusion disk arranged behind the laser for the homogenization of the illumination; } 

and wherein two diffusion disks rotate in opposite directions arranged directly or indirectly behind each other in an illumination ray path. }

15. (New) A microscope system for inspection during semiconductor manufacture comprising:

a laser module;

a microscope;
and a coupling connecting the laser module to the microscope;
a pulsed laser for illumination, said laser being in the UV range;
at least one continuously rotating diffusion disk arranged behind the laser for the homogenization of the illumination;
wherein the diffusion disk is either of a granulated or of a holographically produced design, and;
with a rotation speed of the diffuser disk of at least a magnitude that a rotation by at least one grain size or the resolution limit of a holographically generated structure or by the length of a structure takes place between two laser pulses.